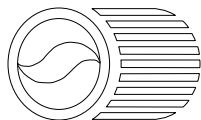


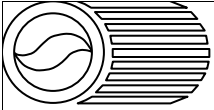
Low Carbon Fuel Standard Workshop: Proposed Revisions to the Draft Regulation

January 30, 2009

California Environmental Protection Agency

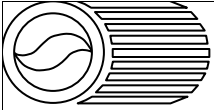


Air Resources Board



Feedback for Changes to Regulation

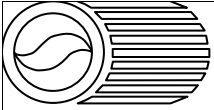
- **Feedback requested for all revised sections**
- **Other portions not shown have not been modified yet but remain subject to further discussion and development**
- **Feedback requested by Feb. 13, 2009**



§ 95420. Definitions & Acronyms

Revised Definitions

- **“Credits and Deficits” (clarified)**
- **“Regulated Party” (clarified)**
- **“Transportation Fuels” (exempts aircraft)**



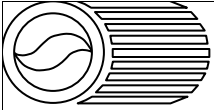
§ 95420. Definitions & Acronyms

New Definitions

Applicable to Section 95424 (a)

- **Natural Gas, Biogas/Biomethane**
- **Biogas CNG, Biogas LNG**
- **Compressed Natural Gas (CNG), Fossil CNG**
- **Liquefied Natural Gas (LNG)**

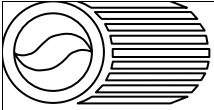
- **Producer, Production Facility**
- **Importer, Import Facility**



§ 95421. Applicability

Provisions for Specific Alternative Fuels

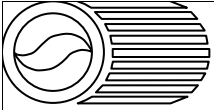
- **Specific alt. fuels presumed compliant through 2020**
- **Opt in available**
 - Electricity
 - Hydrogen, hydrogen blend
 - Fossil CNG from N. American sources
 - Biogas CNG, biogas LNG
- **Other alt. fuels exempted**
 - Low volume, non-biomass or non-renewable biomass based alt. fuels
 - LPG



§ 95422. Standards

Gasoline & Gasoline Substitutes:

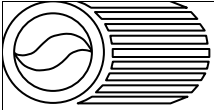
Year	Carbon Intensity (gCO ₂ e/MJ)	% Reduction
2010	Reporting Only	
2011	95.61	0.25%
2012	95.37	0.5%
2013	94.89	1.0%
2014	94.41	1.5%
2015	93.45	2.5%
2016	92.50	3.5%
2017	91.06	5.0%
2018	89.62	6.5%
2019	88.18	8.0%
2020 and subsequent years	86.27	10.0%



§ 95422. Standards

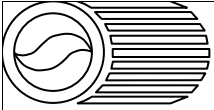
Diesel & Diesel Substitutes:

Year	Carbon Intensity (gCO₂e/MJ)	% Reduction
2010	Reporting Only	
2011	94.47	0.25%
2012	94.24	0.5%
2013	93.76	1.0%
2014	93.29	1.5%
2015	92.34	2.5%
2016	91.40	3.5%
2017	89.97	5.0%
2018	88.55	6.5%
2019	87.13	8.0%
2020 and subsequent years	85.24	10.0%



§ 95423. Alternative Fuels Standards

- **Gasoline standards to be used for**
 - **electricity**
 - **multi-fuel vehicles if one of the fuels used is gasoline or electricity**

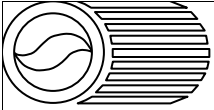


§ 95424 Requirements for Regulated Parties

(a) Identification of Regulated Parties

Gasoline or Gasoline Blend (vast majority of transactions):

- **Initial Designation**
 - **Producer/importer of CARBOB, oxygenate & gasoline**
- **Transfers of Ownership and Compliance Obligation**
 - **For CARBOB, compliance obligation:**
 - **generally retained by initial producer/importer**
 - **transfers by default when ownership transfers to another producer/importer (can be retained under conditions)**
 - **can be transferred to non producers/importers under specified conditions**
 - **For oxygenate, compliance obligation:**
 - **generally transfers with ownership**
 - **can be retained under specified conditions**

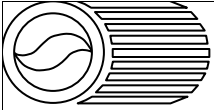


§ 95424 Requirements for Regulated Parties

(a) Identification of Regulated Parties

Adding Oxygenate to Gasoline (relatively rare cases)

- **Transfers of Ownership and Compliance Obligation**
 - Allowed if additional oxygenate not prohibited under 13 CCR sec. 2262.5(d)
 - Written contract required

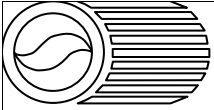


§ 95424 Requirements for Regulated Parties

(a) Identification of Regulated Parties

Diesel or Diesel Blend (generally parallels gasoline language):

- **Initial Designation**
 - **Producer/importer of diesel fuel and biomass-based diesel**
- **Transfers of Ownership and Compliance Obligation**
 - **For diesel fuel, compliance obligation:**
 - **generally retained by initial producer/importer**
 - **transfers by default when ownership transfers to another producer/importer (can be retained under conditions)**
 - **can be transferred to non producers/importers under specified conditions**
 - **For biomass based diesel, compliance obligation:**
 - **generally transfers with ownership**
 - **can be retained under specified conditions**

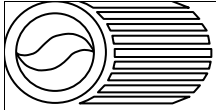


§ 95424 Requirements for Regulated Parties

(a) Identification of Regulated Parties

Natural Gas (CNG, LNG, Biogas):

- **Separate regulated parties for fossil and biogas natural gas (CNG, LNG)**
 - fossil CNG = owner of fueling equipment
 - fossil LNG = owner of fuel delivered to fueling equipment
 - Biogas CNG, LNG = biogas producer
- **Reg. party for biogas supplied directly to vehicles**
 - Biogas producer
- **Transfer of compliance obligations allowed under specified conditions**

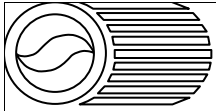


§ 95424 Requirements for Regulated Parties (cont.)

Electricity:

- **Initial Designation**
 - **Load Serving Entity**

- **Transfers**
 - **Provision for contractual transfer of some or all LCFS credits generated to a non-LSE provider of bundled charging infrastructure and other electric transportation services**

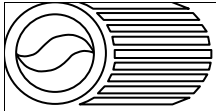


§ 95424 Requirements for Regulated Parties (cont.)

Hydrogen or Hydrogen Blend:

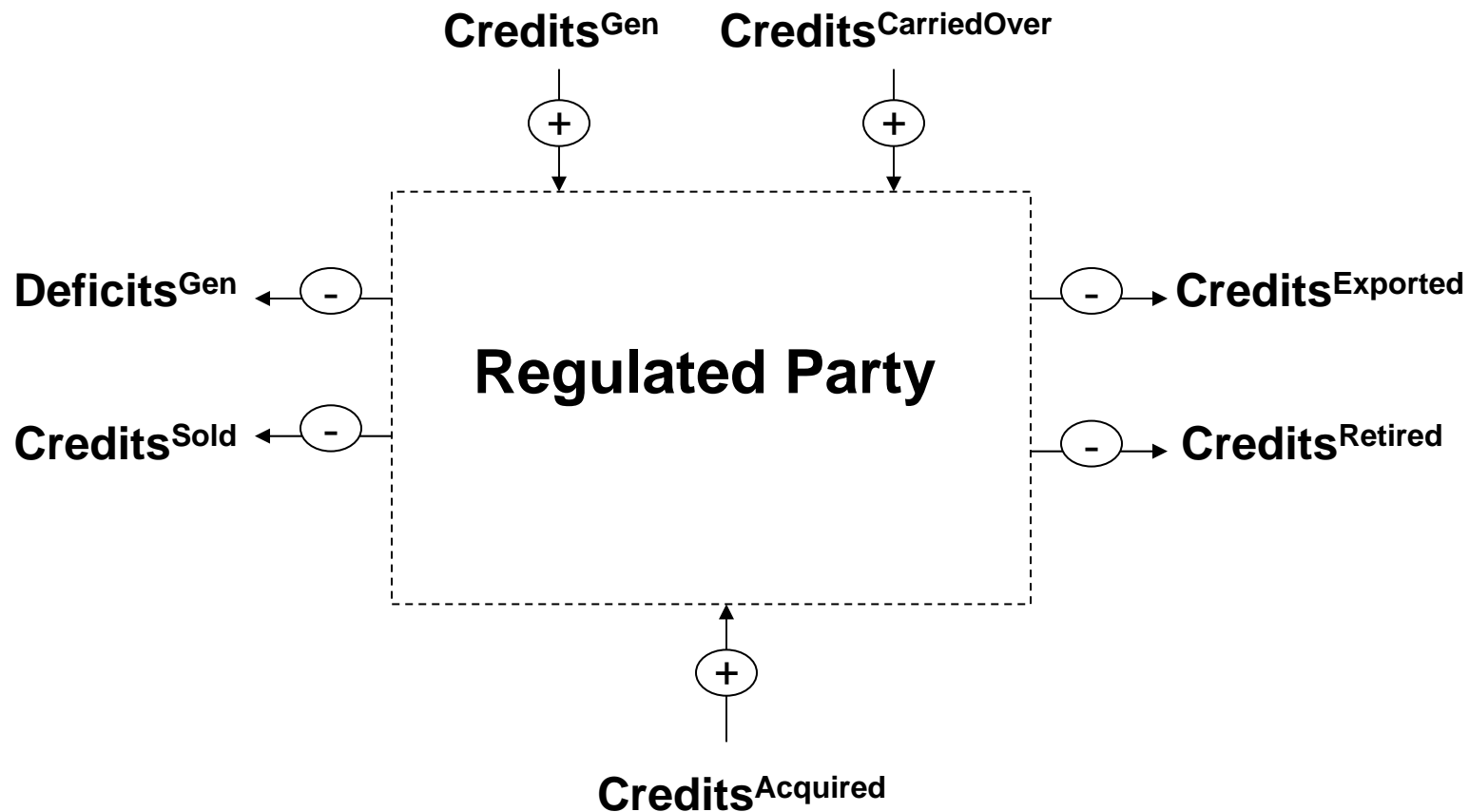
- **Initial Designation**
 - Owner of the finished fuel

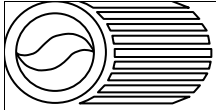
- **Transfers, Compliance Obligation:**
 - Retained by transferor by default
 - Can be transferred by contract



§ 95424 Requirements for Regulated Parties (cont.)

Credit Balance \geq Zero



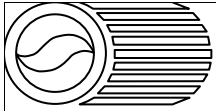


§ 95424 Requirements for Regulated Parties (cont.)

Deficit Carryover w/o Penalty*

$$\begin{array}{c} \textcircled{+} \\ \hline \text{Credits}^{\text{Gen}} \\ + \\ \text{Credits}^{\text{Acquired}} \\ + \\ \text{Credits}^{\text{Carryover}} \end{array} \geq 90\% \begin{array}{c} \textcircled{-} \\ \hline \text{Deficits}^{\text{Gen}} \\ + \\ \text{Credits}^{\text{Sold}} \\ + \\ \text{Credits}^{\text{Retired}} \\ + \\ \text{Credits}^{\text{Exported}} \end{array}$$

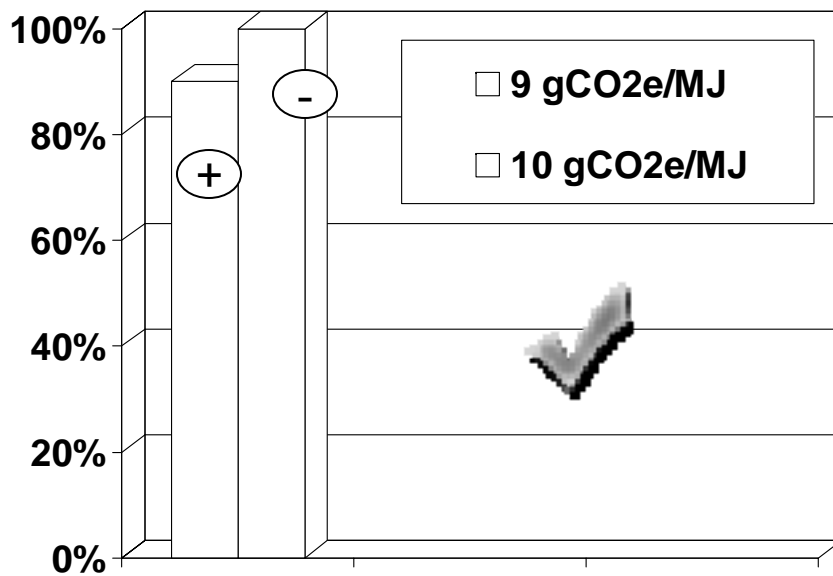
*Provided no deficit in previous year



§ 95424 Requirements for Regulated Parties (cont.)

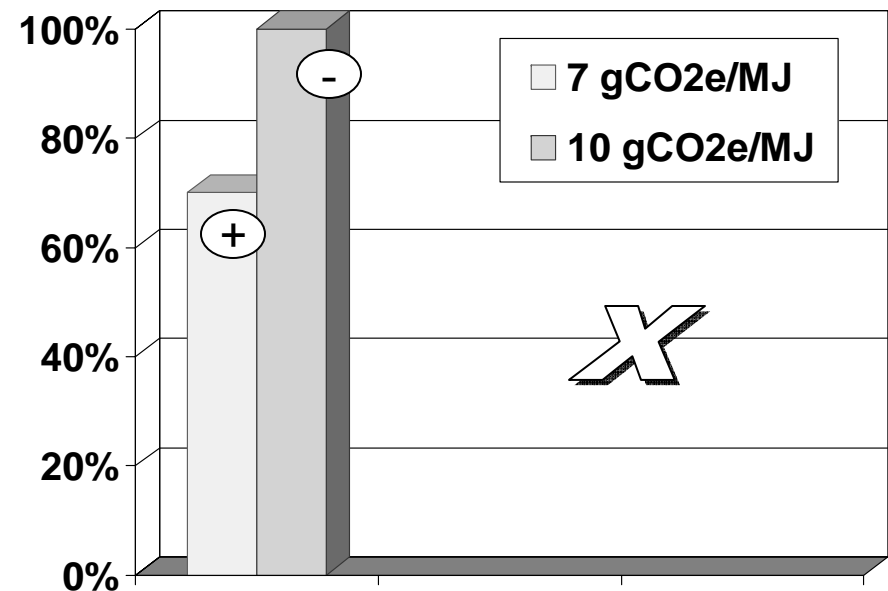
Deficit Carryover w/o Penalty (cont.)

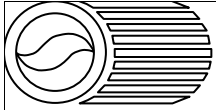
Deficit Carryover*



*Provided no deficit in previous year

Violation

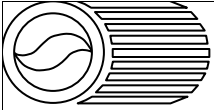




§ 95424 Requirements for Regulated Parties (cont.)

Quarterly Report—Primary Contents:

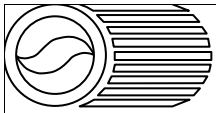
- **Compliance obligation transfer documents (unchanged from Dec. 2008 version)**
- **Items specified in Table 4**
 - **Blendstock feedstock type, origin and production process reporting is required amongst other items**
- **Fuel volumes and carbon intensities (unchanged from Dec. 2008 version)**
- **Federal Renewable Identification Numbers (RINs) retired for California facilities**



§ 95425. LCFS Credits and Deficits

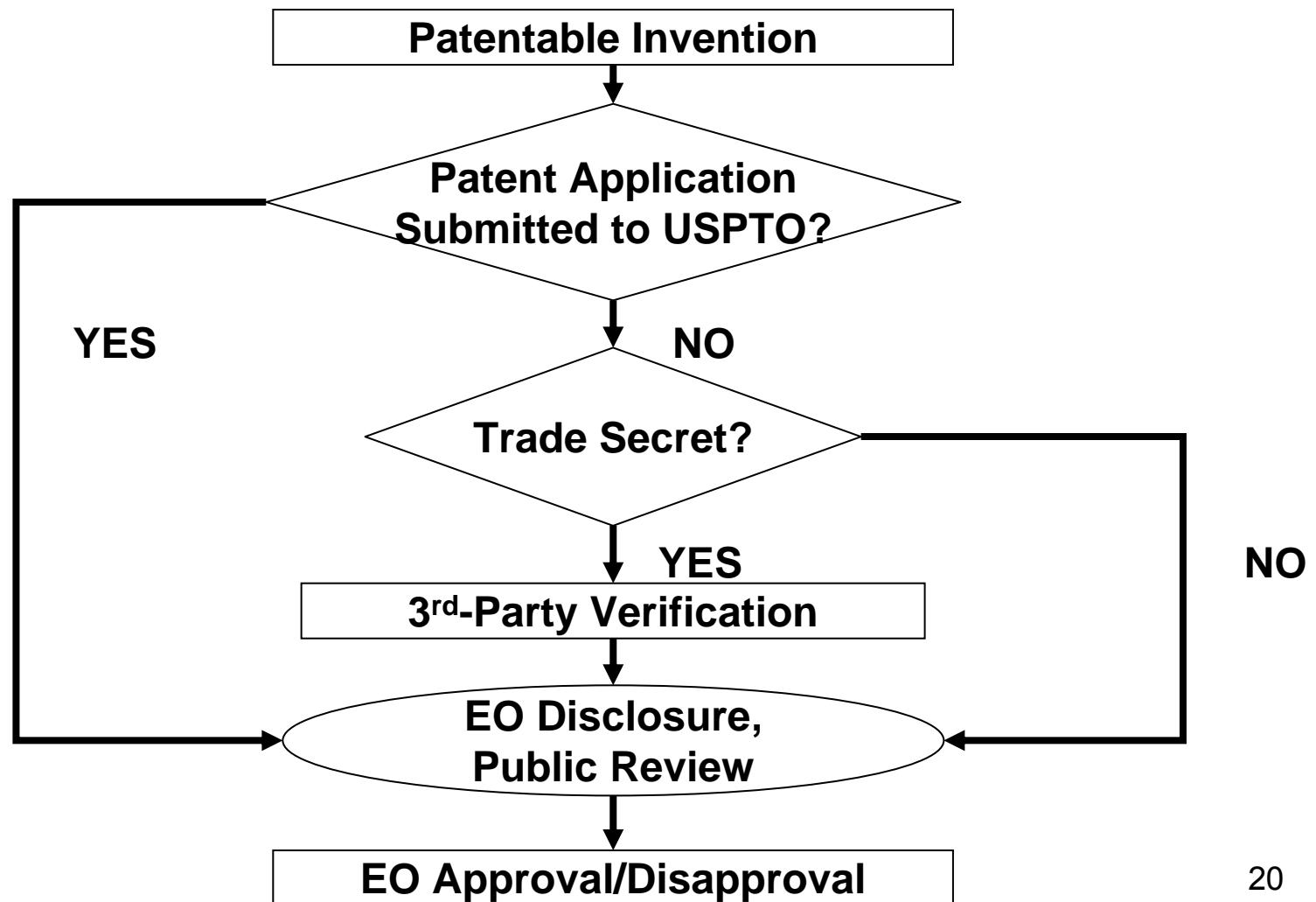
Energy Economy Ratio (EER) Revised

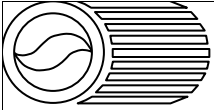
- **Light/ Medium-duty Applications**
 - Electric Vehicles (BEVs and PHEVs)
 - 3.0 changed from 2.4
 - Hydrogen Vehicles (FCVs and ICEVs)
 - 2.3 changed from 3.0
- **Heavy-duty Applications**
 - CNG/LNG Vehicles
 - 0.9 changed from 1.0



§ 95426. Determination of Carbon Intensity Values (cont.)

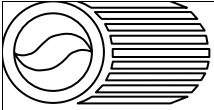
Public Disclosure of Patentable LCFS Technology





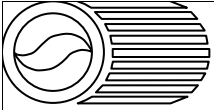
§ 95429. Regulation Review

- **Executive Officer to conduct review of LCFS program by January 1, 2012**
- **EO to determine scope and content of the review**



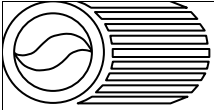
Appendices

- **Appendix A. Calculation of Energy Economy Ratios (removed)**
- **Appendix B. Sample Carbon Intensity Look-up Table (updated)**
 - Provides carbon intensity values (CI) by fuel type
 - Includes indirect land use change values for corn ethanol



What's Left?

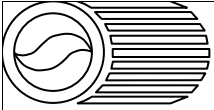
- **Early Years Cap**
- **Fee Schedule**
- **Incentivizing Carbon Capture & Sequestration**
- **Calculation of Violation Days**
- **California Average Crude Mix vs. Others**
- **Method 2A & 2B**
- **Physical Pathway**



Feedback Submission Procedure

- **Comments submitted will be posted online**
- **Submission contacts listed in next slide**
- **Comments requested by:**

February 13, 2009



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